IN THE CLAIMS:

Kindly replace the claims of record with the following full set of claims:

1. (Original) An active matrix display device comprising an array of display pixels, each pixel comprising:

a current-driven light emitting display element (20);

a drive transistor (22) for driving a current through the display element;

a storage capacitor (24) for storing a pixel drive voltage to be used for addressing the drive transistor;

a light-dependent device (40) for detecting the brightness of the display element; and

driver circuitry for providing data signals to the pixel external to the pixel array,

wherein the driver circuitry further comprises processing means (114,116) for processing brightness signals from the light-dependent devices of each pixel, wherein the processing means is adapted to derive from a plurality of different brightness signals from each pixel a threshold voltage for the drive transistor of the pixel and information relating to the performance of the display element.

2. (Original) A device as claimed in claim 1, wherein each pixel further comprises a sense transistor (45) for controlling the coupling of the light-dependent device to a sense line (46).

3. (Original) A device as claimed in claim 1, wherein the light dependent device (40) is connected in series with the sense transistor (45) between a power supply line (32) and a sense line (46).

4. (Previously presented) A device as claimed in claim 1, wherein the storage capacitor (24) is connected between the gate and source of the drive transistor (22).

5. (Previously presented) A device as claimed in claim 1, wherein the brightness signals are in the form of a quantity of charge stored on a capacitor (44) associated with the light dependent device.

6. (Previously presented) A device as claimed in claim 1, wherein the information relating to the performance of the display element comprises a parameter which takes account of the display element efficiency and the drive transistor mobility.

7. (Previously presented) A device as claimed in claim 1, wherein the drive transistor (22) is connected between a power supply line (32) and the display element (20).

8. (Previously presented) A device as claimed in claim 1, wherein the current-driven light emitting display element comprises an electroluminescent display element.

9. (Previously presented) A device as claimed claim 1, wherein the driver circuitry is operable during a setup process to drive the display elements of each pixel to a plurality of different predetermined drive levels, and the processing means is operable to process brightness signals from the light-dependent devices of each pixel for each of the plurality of different predetermined drive levels.

10. (Original) A device as claimed in claim 9, wherein the driver circuitry is operable during a setup process to drive the display elements of each pixel to an off state, a full brightness state and an intermediate state.

11. (Original) A device as claimed in claim 10, wherein the driver circuitry is operable during a setup process to drive the display elements of each pixel to a plurality of different predetermined drive levels twice, and the processing means is operable to process brightness signals from the light-dependent devices of each pixel for each of the plurality of different predetermined drive levels for two different time periods of illumination.

12. (Original) A device as claimed in claim 11, wherein the processing means derives difference data from pairs of data for each pixel for each of the plurality of different predetermined drive levels.

13. (Original) A device as claimed in claim 12, wherein the processing means derives further difference data from the difference data in order to compensate for ambient illumination of the light dependent devices.

14. (Original) A device as claimed in claim 13, wherein the processing means derives, for each pixel, threshold voltage data and mobility data from the further difference data.

15. (Previously presented) A device as claimed in claim 1, wherein the driver circuitry is operable during use of the display to perform a reset operation (64,66) of the light dependent device of a pixel or row of pixels, and subsequently to control the processing means to process brightness signals from the light-dependent devices of the pixel or row of pixels.

16. (Original) A device as claimed in claim 15, wherein the driver circuitry is operable to control the processing means to process brightness signals from the light-dependent devices of the pixel or row of pixels shortly before the light dependent device of a pixel or of a pixel in the row reaches a saturation condition.

17. (Original) A device as claimed in claim 16, wherein the driver circuitry is operable to control the processing means to process brightness signals from the light-dependent devices of the pixel or row of pixels a plurality of frames after the reset operation.

18. (Previously presented) A device as claimed in claim 1, further comprising a memory structure having a first memory means (120) for storing threshold voltage information for the drive transistor of each pixel and having a second memory means (118) for storing mobility information for each pixel.

19. (Original) A device as claimed in claim 18, wherein the drive transistor (22) is a p-type thin film transistor, and wherein data is provided once only to the first memory means during a setup procedure, and data in the second memory means is updated during use of the display.

20. (Original) A device as claimed in claim 18, wherein the drive transistor (22) is an n-type amorphous silicon thin film transistor, and wherein data is provided once only to the second memory means during a setup procedure, and data in the first memory means is updated during use of the display.

21. (Original) A method of driving an active matrix display device comprising an array of display pixels each comprising a drive transistor (22), a current-driven light emitting display element (20) and a light-dependent device (40) for detecting the brightness of the display element, the method comprising:

driving the display elements (20) of each pixel to a plurality of different predetermined drive levels, and processing brightness signals from the light-dependent devices of each pixel for each of the plurality of different predetermined drive levels; and

deriving threshold voltage and information relating to the performance of the display element from the brightness signals.

22. (Original) A method as claimed in claim 21, wherein the method comprises:

during a setup process, deriving the threshold voltage and performance information from the brightness signals; and

during use of the display, processing brightness signals from the light-dependent devices of each pixel to update the performance information and thereby compensate for differential pixel ageing.

23. (Original) A method as claimed in claim 22, wherein during the setup process the display elements of each pixel are driven to an off state, a full brightness state and an intermediate state.

24. (Original) A method as claimed in claim 23, wherein during the setup process the display elements of each pixel are driven to a plurality of different predetermined drive levels twice, and brightness signals from the light-dependent devices of each pixel are processed for each of the plurality of different predetermined drive levels for two different time periods of illumination.

25. (Original) A method as claimed in claim 24, further comprising deriving difference data from pairs of data for each pixel for each of the plurality of different predetermined drive levels.

26. (Original) A method as claimed in claim 25, comprising deriving further difference data from the difference data in order to compensate for ambient illumination of the light dependent devices.

27. (Original) A method as claimed in claim 26, further comprising deriving, for each pixel, threshold voltage data and mobility data from the further difference data.

28. (Previously presented) A method as claimed in claim 21, comprising, during use of the display, performing a reset operation of the light dependent device of a pixel or row of pixels, and subsequently processing brightness signals from the light-dependent devices of the pixel or row of pixels.

29. (Original) A method as claimed in claim 28, wherein the reset operation is carried out during a field blanking period of the display.

30. (Previously presented) A method as claimed in claim 28, wherein brightness signals from the light-dependent devices of the pixel or row of pixels are processed shortly before the light dependent device of a pixel or of a pixel in the row reaches a saturation condition.

31. (Original) A method as claimed in claim 30, wherein a saturation condition is predicted by estimating the expected condition of the light sensing devices of the pixels in response to the display data since the reset operation and the display data of the next frame.

32. (Previously presented) A method as claimed in claim 30, wherein brightness signals from the light-dependent devices of the pixel or row of pixels are processed a plurality of frames after the reset operation.

33. (Previously presented) A method as claimed in claim 21, further comprising storing threshold voltage information for the drive transistor of each pixel in one memory are and storing mobility information for each pixel in a second memory area.

34. (Original) A method as claimed in claim 33, wherein the drive transistor is a p-type thin film transistor, and wherein data is provided once only to the first memory area during a setup procedure, and data in the second memory means is updated during use of the display.

35. (Original) A method as claimed in claim 33, wherein the drive transistor is an n-type amorphous silicon thin film transistor, and wherein data is provided once only to the second memory area during a setup procedure, and data in the first memory area is updated during use of the display.

36. (Previously presented) A method as claimed in claim 21, wherein the pixel drive data is modified taking into account the most recent threshold voltage and mobility information